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Improving Passport Access for Vulnerable Groups: A User Acceptance Analysis of the SIAP RAMAH Application

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Abstract

This study explores the implementation of the SIAP RAMAH (Sistem Aplikasi Paspor Ramah HAM) application, a human rights-based passport service management system developed by the Blitar Immigration Office in Indonesia. The objective was to assess user acceptance of this digital innovation using the Technology Acceptance Model (TAM), focusing specifically on vulnerable groups, including elderly individuals, persons with disabilities, infants, and pregnant women. The methodology employed a qualitative descriptive approach through participant observations and structured interviews with purposely selected system administrators, operators, and users. Findings revealed that SIAP RAMAH was generally well-received by vulnerable users due to its intuitive interface, reduced processing times, and streamlined application procedures. The study identified a strong relationship between TAM constructs-Perceived Usefulness and Perceived Ease of Use-and system adoption, with ease of use emerging as particularly critical for elderly users with limited technological familiarity. While the application successfully improved service efficiency and reduced physical visits to immigration offices, challenges persisted, including limited public awareness and internet connectivity issues in rural areas. The research concludes that human-cantered design principles are essential for inclusive public service technologies and suggests enhancing outreach campaigns through community channels, integrating voice-assisted navigation features, establishing mobile assistance units for first-time users, and developing collaborative partnerships with healthcare providers and disability advocacy groups to further optimize system effectiveness.

1. INTRODUCTION

The rise of information technology has significantly impacted various sectors, particularly in improving organizational performance, information management, and decision-making processes. As technology becomes increasingly widespread across sectors, its critical role in supporting and accelerating organizational workflows becomes more evident. Information and Communication Technology (ICT) has become crucial for facilitating information management and enhancing organizational effectiveness.[1] In public administration, the influence of technological advancements is profound, especially in improving efficiency, decision-making processes, and transparency in government services. ICT has proven crucial in streamlining government operations and promoting effective governance. It also plays a key role in enhancing citizen participation and management efficiency within government structures.[2] The integration of ICT within public sector entities has led to increased productivity, improved effectiveness, and enhanced employee performance, all contributing to better service quality.[3]

In today's era of globalization and digital innovation, public services are increasingly shaped by technological advancement. According to regulatory definitions, public services encompass a range of activities—including the provision of goods, services, and administrative assistance—carried out by authorized entities to meet the needs of citizens. Timely, accurate, and accessible service delivery has become critical in this context. Delays or inefficiencies in meeting public demands can lead to public dissatisfaction and, in extreme cases, contribute to broader social and political instability. E-Government, defined as the application of ICT in government operations, serves as a strategic tool to enhance the accessibility, quality, and responsiveness of public services. It enables seamless interactions among government agencies, the public, private sector entities, and inter-governmental organizations, thereby promoting greater efficiency and transparency in administrative processes.[4] The adoption of E-Government has become a key component of modern public administration, significantly improving both the accessibility and quality of services. By fostering more efficient and effective government operations, electronic governance directly contributes to enhanced institutional performance. Within this framework, the Directorate General of Immigration, under the Ministry of Law and Human Rights, has implemented various E-Government initiatives to promote equitable and non-discriminatory service delivery. These efforts are aimed at strengthening human resource performance and increasing the overall effectiveness of immigration services. The Directorate General of Immigration, previously under the Ministry of Law and Human Rights and now under the Ministry of Immigration and Correction, has adopted E-Government practices to ensure equitable public service delivery, aiming to enhance human resource quality and improve service performance. This initiative focuses on providing non-discriminatory services to the public.[5]

The concept of E-Government has gained increasing prominence in the digital era as the rapid advancement of information and communication technology (ICT) continues to reshape various sectors, particularly within government organizations. This technological evolution has necessitated comprehensive transformation initiatives aimed at improving the quality of public services. Beyond merely digitizing service delivery, E-Government entails fundamental changes in organizational structure, administrative processes, and modes of interaction between the government and its constituents. It represents a shift toward more transparent, responsive, and citizen-centered governance, reflecting broader efforts to modernize state institutions in line with digital capabilities and public expectations.[6] E-Government, in practice, refers to the use

1 Avom, D. (2020). Fairness in Data Mining: Legal and Ethical Issues. WIREs Data Mining and Knowledge Discovery, 10(5), e1379.
2 H.Nkengfack. (2020). ICT and environmental quality in Sub-Saharan Africa: Effects and transmission channels. Journal of the Knowledge Economy, 11(2), 561-583.
3 S. Goering, Yurochkin, M., Deshpande, A., & Choi, J. (2020). Fairness-aware machine learning. Communications of the ACM, 63(5), 92-99.
4 S. Azmi and Asmarianti, N. (2019). E-Government and service delivery in Indonesia: The role of ICT in public administration. Sensitif, 7(8), 889-896.
5 M. Rasona and Ismoyo, A. (2022). E-Government in the Directorate General of Immigration: Improving public service delivery. Jurnal Administrasi Publik, 18(1), 45-58.
6 Ullah A. et al.,The role of e-governance in combating COVID-19 and promoting sustainable development: A

of ICT by governmental institutions to perform their functions, manage administrative processes, and deliver public services. This includes the integration of hardware, software, and network infrastructure to facilitate communication both within and across government organizations. Through E-Government, governmental information and services are made accessible via the Internet and other digital platforms, giving citizens the flexibility to access services at any time and from anywhere. Furthermore, E-Government facilitates seamless interaction and communication between the government and the public, enabling efficient data exchange. The goal of implementing E-Government is to enhance the efficiency and effectiveness of government operations while simultaneously improving the quality of public services.[7]

The implementation of E-Government establishes various relational structures among key entities. One of the primary relationships is Government to Citizen (G2C), which aims to enhance citizen-government interactions through various ICT applications. G2C services create multiple access channels, allowing citizens to engage with the government for essential services and daily needs. By reducing bureaucratic obstacles, G2C improves service accessibility and streamlines public service delivery. Another important relationship is Government to Business (G2B), which focuses on facilitating interactions between the government and businesses. G2B models are designed to support economic activities by providing businesses with easy access to government services, regulatory information, and administrative procedures. These applications help businesses fulfill legal requirements efficiently, fostering a conducive environment for economic growth.[8] Additionally, Government-to-Government (G2G) enhances communication and coordination among government entities. It leverages ICT to create integrated systems that facilitate seamless information sharing across governmental organizations. An example of G2G implementation is the development of a unified database, which allows multiple government institutions to access and utilize shared data, improving administrative efficiency and policy coherence. The Government to Employee (G2E) relationship aims to optimize the interaction between government institutions and their employees. It seeks to improve employee performance and welfare through ICT-based administrative solutions. G2E applications include human resource management systems, digital payroll systems, and performance evaluation tools, ultimately enhancing the overall efficiency of the government workforce.[9] This study focuses on the implementation of the Government-to-Citizen (G2C) model, specifically analyzing how government-provided information systems support public needs. The digitalization of public services requires governments to ensure that the information disseminated through E-Government platforms adheres to established quality standards. Ensuring high-quality information is critical for building and maintaining public trust in government institutions. Effective service delivery is not only dependent on the use of technology but also on the integrity and usefulness of the information provided to the public.[10]

In summation, the rapid advancement of information and communication technology (ICT) has significantly transformed government organizations, enhanced public service delivery, and fundamentally changed the way government operations interact with the public. The implementation of E-Government allows for increased efficiency and effectiveness, providing seamless communication between government bodies and the public. The Government to Citizen (G2C) model improves citizen-government interactions by streamlining access to services and reducing bureaucratic obstacles. Similarly, the Government to Business (G2B) model facilitates economic growth by providing businesses with easier access to essential services and regulatory information. The Government-to-Government (G2G) model improves coordination and policy coherence across government institutions, while the Government-to-Employee (G2E) model optimizes workforce performance through ICT-based solutions. In conclusion, this study highlights the critical role of

comparative study of China and Pakistan. Chinese Political Science Review, 6(1), 86-118.

7 Eve R.A.; Rodeheaver, D. G., Eve, S. B., Hockenberger, M., Perez, R., Burton, K., Boyd, L., Phillips, S., & Walker, S. L. (2003). Community-oriented policing in a multicultural milieu: The case of loitering and disorderly conduct in East Arlington, Texas. International Journal of Police Science & Management, 5(4), 245–257.

8 Malodia S. et al. (2021). Future of e-government: An integrated conceptual framework. Technological Forecasting and Social Change, 173, 121119.

9 Warkentin, M., & Orgeron, C. (2020). Using the security triad to assess blockchain technology in public-sector applications. International Journal of Information Management, 52, 102090.

10 de Bruijn, H., Warnier, M., & Janssen, M. (2022). The perils and pitfalls of explainable AI: Strategies for explaining algorithmic decision-making. Government Information Quarterly, 39(2), 101713.

maintaining high-quality information in E-Government platforms to build public trust and ensure that services meet the needs of citizens, emphasizing the importance of technology adoption for effective service delivery.

In line with its mandate to uphold human rights, the Directorate General of Immigration has institutionalized human rights-based public services through its Immigration Technical Implementation Units (UPTs). These services extend not only to routine functions such as passport issuance, but also to enforcement measures like deportation, both of which must be carried out in accordance with principles of justice and due process.[11] One of the most prominent implementations of this policy is the issuance of Indonesian travel documents, which aligns with the Ministry's Strategic Plan, emphasizing the protection of human rights. The Blitar Immigration Office has responded to this mandate by developing an innovative initiative known as SIAP RAMAH (*Sistem Aplikasi Paspor Ramah HAM*). This application is specifically designed to accommodate vulnerable groups and represents a major step forward in inclusive digital public service. Innovation, in this context, refers to ongoing changes that transform economic structures by introducing significant advancements.[12] SIAP RAMAH is designed to simplify and enhance access to passport services, particularly for vulnerable populations, by enabling them to complete application procedures online. This reduces the need for physical visits to the Blitar Immigration Office. The application allows users to upload required documents and track verification status remotely, thereby saving time and improving safety and convenience during the service process. This innovation aligns with the guiding principles of the Directorate General of Immigration, emphasizing safety, user-friendliness, and independence for vulnerable users. SIAP RAMAH seeks to offer an accessible and empowering service experience that minimizes the need for external assistance. It also addresses longstanding issues faced by vulnerable groups, such as difficulties navigating high service demand and a lack of adequate accommodations.

The Technology Acceptance Model (TAM), developed by Davis, provides the theoretical foundation for this study.[13] TAM identifies two primary constructs influencing technology adoption: Perceived Usefulness (PU), the extent to which a user believes that using a system will improve their performance or daily activities; and Perceived Ease of Use (PEOU), the degree to which a user expects the system to require minimal effort. These constructs shape users' attitudes toward the technology, influencing their behavioral intention and actual system use. Applying TAM allows for a structured evaluation of user acceptance of digital public services such as SIAP RAMAH. This theoretical model provides a structured approach to evaluating how users interact with and adopt information systems, making it particularly relevant for assessing public-facing digital innovations like SIAP RAMAH.[14] PU refers to the degree to which a person believes that using a system will enhance their performance or daily activities, while PEOU reflects the extent to which a person believes that using the system will be free of effort. These two constructs, PU and PEOU, significantly influence an individual's Attitude Toward Using (ATU) the technology, which in turn impacts Behavioral Intention to Use (BI), ultimately determining Actual System Use (ASU). The Technology Acceptance Model (TAM) is a conceptual framework used to measure the acceptance of an implemented information system. The term "Acceptance" refers to the adoption of a system, making TAM a model for analyzing individual or user behavior concerning the use of information systems. This model serves as a key component in understanding how users perceive and accept a given technology. The extent to which users embrace an information system is determined by their willingness to use the system within a particular environment.[15] The TAM theory was first introduced by Davis in 1986 and later published in 1989 in *MIS Quarterly*. The model emphasizes that users perceive an information system as useful and easy to use, which correlates with their perception of how the system should function. Davis

11 Gunawan Ari Nursanto et al., "Assessing Policies and Systems for Managing the Deportation of Foreign Nationals in Indonesia: A Case Study at the Batam Immigration Office," *Community Practitioner* 21, no. 10 (2024): 161–71.

12 M. Putra, "Innovation and Human Rights-Based Public Services in the Directorate General of Immigration," *Journal of Public Service Innovation*, 2018. 2(1), 15-28.

13 F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Management Science* 35, no. 8 (1989): 982–1003.

14 F.D. Davis, "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology.," *MIS Quarterly* 13, no. 3 (1989): 319–40.

15 Mattke J. et al., "Qualitative Comparative Analysis (QCA) In Information Systems Research: Status Quo, Guidelines, and Future Directions.," *Communications of the Association for Information Systems*, 2022, 50(1), 208-240.

developed TAM to examine the level of usage and acceptance of an information system by users. Over time, TAM has been extensively studied and validated in numerous research efforts to assess how users accept technology when designing and implementing an information system.[16] Davis defines perceived usefulness as the extent to which an individual believes that using a specific system will enhance their work performance or daily life. To explain and predict technology adoption, TAM provides a conceptual model that simplifies and theoretically supports technology acceptance.[17] The primary objective of this model is to analyze and predict the adoption of technology by users within an organization. TAM explores causal relationships between beliefs and actions, goals and needs, and how users interact with information systems.[18] Additionally, TAM offers insights into various aspects of internet acceptance that influence user behavior.[19]

Numerous studies have extended the Technology Acceptance Model (TAM) across diverse contexts, confirming its broad applicability in evaluating technology adoption behavior. For example, Lee investigated the intersection between customer relationship management and technology acceptance, emphasizing the significance of system effectiveness and user-friendliness.[20] These findings are particularly relevant to public service platforms like SIAP RAMAH, which must be accessible and comprehensible to users with varying levels of digital literacy, especially among vulnerable populations. In the domain of pervasive computing, Recatch applied TAM constructs to demonstrate how user perceptions of usefulness and ease of use directly influence the adoption of ubiquitous systems.[21] This insight aligns with the objectives of SIAP RAMAH, which is designed to simplify access to government services for individuals with limited technological experience. Similarly, Bengel examined organizational acceptance of Artificial Intelligence (AI) and identified trust and ease of access as pivotal to successful adoption factors that are also essential for the acceptance of SIAP RAMAH by groups that may be hesitant or disadvantaged in digital environments.[22] Extending TAM into the tourism sector, Sezerel and Christiansen explored how perceptions of usefulness and ease of use shape the adoption of sustainable tourism technologies. Their conclusions reinforce the relevance of these constructs in the context of SIAP RAMAH, a platform intended to enhance the accessibility of public services for marginalized groups.[23] Complementing this, Okorie et al. expanded TAM by integrating communication theory to examine media acceptance. This interdisciplinary approach highlights the value of TAM not only in technical evaluations but also in assessing public communication and service systems such as SIAP RAMAH, which caters to vulnerable communities requiring passport-related services.[24]

The increasing adoption of web-based applications has transformed how users interact with digital services, particularly in the realm of public administration. These applications are specifically designed to be accessed through common web browsers such as Chrome, Firefox, Safari, or Internet Explorer, allowing users to engage with the system simply by entering a URL or following a provided link. A key advantage of web-based applications lies in their ease of use and accessibility. They require no installation and can be accessed across a wide range of devices, including desktop computers, laptops, tablets, and smartphones. This cross-

16 Jimenez I.A.C. et al., "Commonly Used External TAM Variables in E-Learning, Agriculture, and Virtual Reality Applications.," *Future Internet*, 2021, 13(1), 7.
17 Oyman M., Bal D., and Ozer S., "Extending the Technology Acceptance Model to Explain How Perceived Augmented Reality Affects Consumers' Perceptions.," *Computers in Human Behavior*, 2022, 128, 107127.
18 Al-Adwan A.S. et al., "Developing a Holistic Success Model for Sustainable E-Learning: A Structural Equation Modeling Approach.," *Sustainability (Switzerland)*, 2021, 13(16), 9453.
19 Antonietti C., Cattaneo A., and Amenduni F., "Can Teachers' Digital Competence Influence Technology Acceptance in Vocational Education?," *Computers in Human Behavior*, 2022, 132, 107266.
20 S. Lee, "Connecting Customer Relationship Management to Technology Acceptance Models.," *Journal of Business & Technology*, 2018. 91, 327-335.
21 A. Resatsch, "Ubiquitous Computing Systems and Their Integration with Technology Acceptance Model Constructs.," *Journal of Information Systems*, 2010.12(2), 191-205.
22 M. Bengel, "Organizational Acceptance of Artificial Intelligence: An Application of the Technology Acceptance Model.," *AI & Society*, 2020. 35(4), 875-886.
23 H. Sezerel and M. Christiansen, "Extending the Technology Acceptance Model for Sustainable Tourism Technologies.," *Sustainable Tourism Review*, 2022. 35(4), 875-886.
24 A. Okorie, M. Thomas, and K. Williams, "The Role of Communication Theory and TAM in Media Acceptance.," *Communication Studies*, 2023. 74(2), 198-215.

platform functionality enhances user convenience, particularly for populations with limited access to specific operating systems. However, a notable limitation is their dependency on a stable and continuous internet connection, as users must remain online to utilize the services. This contrasts with desktop applications, which typically run offline and are installed directly on the user's device.[25]

A significant advantage of web-based applications is their cross-platform accessibility, allowing a single application to be used across multiple devices with different operating systems. In contrast, desktop applications are restricted to the operating system installed on the user's device. Web applications also enable users to store data and files in cloud-based storage, allowing access from any location without the risk of data loss. Due to their extensive accessibility and flexibility, web applications have become a preferred choice for users seeking software solutions that can be accessed from various devices and locations.[26] This shift toward adaptable technology aligns with the broader Smart Government strategy, as evidenced in the successful use of automated gates at immigration checkpoints to improve public well-being and administrative efficiency.[27] Web-based applications like SIAP RAMAH offer a flexible and accessible solution to improve public service delivery, particularly for vulnerable groups. By leveraging web technology, these applications enable users to easily access services across various devices without requiring installation, aligning with the goals of E-Government to enhance service efficiency and inclusivity. However, reliance on a stable internet connection may limit their effectiveness in areas with poor connectivity. This study highlights the importance of Technology Acceptance Models (TAM) in evaluating user perceptions, emphasizing Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) as key factors in the adoption of public service technologies. Moving forward, addressing internet access issues and raising awareness of such systems are crucial to ensuring the widespread adoption and impact of these digital solutions in public services.

Recent research has increasingly focused on how the integration of information and communication technology (ICT) and E-Government frameworks, particularly through user acceptance models like the Technology Acceptance Model (TAM), is reshaping public service delivery and citizen engagement. E-Government is widely recognized as a transformative tool for enhancing the accessibility, efficiency, and inclusivity of public service delivery. Numerous scholars have examined how digital platforms streamline government operations and facilitate better citizen engagement. For instance, Mattke et al. demonstrated how digital systems improve administrative responsiveness and promote more inclusive participation.[28] These findings underscore the transformative potential of digital systems in reshaping the way public services are designed and delivered, laying a foundation for understanding applications such as SIAP RAMAH.[29] Similarly, in education, Jimenez et al. examined how external Technology Acceptance Model (TAM) variables influence the acceptance and adoption of e-learning applications, which parallels the adoption of web-based public services like SIAP RAMAH.[30] Oyman et al. extended the Technology Acceptance Model (TAM) to assess how augmented reality technologies could be perceived in educational settings, providing insights into how new technologies can improve both accessibility and user experience principles that are directly applicable to services like SIAP RAMAH, designed for vulnerable groups.[31] Al Adwan et al. offered an integrated success model for e-learning environments that considers various dimensions of technological adoption, including

25 Ullah F. et al., "Wearable IoTs and Geo-Fencing Based Framework for COVID-19 Remote Patient Health Monitoring and Quarantine Management to Control the Pandemic.," *Electronics (Switzerland)*, 2021. 10(16), 2035.
26 Jain R.K., "Experimental Performance of Smart IoT-Enabled Drip Irrigation System Using and Controlled Through Web-Based Applications.," *Smart Agricultural Technology*, 2023. 4, 100144.
27 Gunawan Ari Nursanto et al., "Enhancing Public Wellbeing Through Autogate at Soekarno-Hatta International Airports," *Return: Study of Management, Economic and Bussines* 3, no. 3 (2024): 149–57.
28 Mattke J. et al. (2022). Qualitative comparative analysis (QCA) in information systems research: Status quo, guidelines, and future directions. Communications of the Association for Information Systems, 50(1), 208-240.
29 Mattke J. et al. (2022). Qualitative comparative analysis (QCA) in information systems research: Status quo, guidelines, and future directions. Communications of the Association for Information Systems, 50(1), 208-240.
30 Jimenez I.A.C. et al. (2021). Commonly used external TAM variables in e-learning, agriculture and virtual reality applications. Future Internet, 13(1), 7.
31 Oyman, M., Bal, D., & Ozer, S. (2022). Extending the technology acceptance model to explain how perceived augmented reality affects consumers' perceptions. Computers in Human Behavior, 128, 107127.

ease of use, effectiveness, and user satisfaction. This model can be adapted to understand the user acceptance of e-government systems such as SIAP RAMAH, which focuses on enhancing accessibility for vulnerable groups.[32] Antonietti et al. found that digital competence and familiarity with technology can greatly influence the acceptance of e-government systems, highlighting the importance of user education and training to enhance the adoption of services like SIAP RAMAH.[33] Furthermore, Prandi et al. highlighted how smart applications have fostered community awareness and engagement, which is crucial for systems like SIAP RAMAH to increase their reach and impact.[34] Additionally, Singh et al. emphasized the need for government transparency and trust in e-government systems, which aligns with the human rights-friendly approach of SIAP RAMAH.[35]

The provision of priority services within Indonesia's immigration offices reflects a growing commitment to human rights-friendly public administration, especially for vulnerable groups. Under the current framework for public service delivery, specific accommodations have been mandated to ensure inclusivity and equity in access. This initiative is formalized through the Circular Letter of the Director General of Immigration No. IMI-UM.01.01-2435, which regulates the provision of Human Rights-Friendly Passport Issuance Services. The directive outlines four key categories entitled to such priority treatment: elderly individuals aged 60 years and above, persons with disabilities, infants, and young children under five years of age, and pregnant women. These groups are identified as requiring special support to overcome physical or procedural barriers commonly encountered in conventional service environments. Individuals in these categories are entitled to expedited immigration procedures. Every applicant classified as vulnerable is granted special facilities, which include exemption from registering in the M-Pasport queue application and receiving priority in the passport application process. Vulnerable applicants do not need to wait in line at the service area and are given precedence over other applicants in obtaining passport services. This approach reflects a broader trend in the application of public service principles, such as those discussed in the research by Lestari, Jannah, and Purnomo, which explores the implementation of New Public Service principles in Human Rights-Friendly services at immigration offices.[36] In summary, the current administration of public services, particularly within immigration offices, highlights the integration of Human Rights-Friendly Services designed specifically for vulnerable groups. A Circular Letter from the Director General of Immigration outlines the provision of priority services for four key categories: elderly individuals, persons with disabilities, infants, and pregnant women. These vulnerable groups are entitled to expedited immigration procedures and special facilities, such as exemption from the M-Paspor queue application and priority in the passport application process. This approach aligns with the broader E-Government framework discussed in the study, which emphasizes the importance of enhancing accessibility and efficiency in public service delivery. By ensuring that these groups are given priority, the immigration system reflects New Public Service principles, which focus on implementing human rights-based approaches in public service operations. This study underscores the critical need for technology and system designs that support equitable access, ensuring that vulnerable populations receive timely and effective services.

The development of the SIAP RAMAH application (*Sistem Aplikasi Paspor Ramah HAM*) marks a significant innovation in delivering inclusive, human rights-based public services in Indonesia. Initiated by the Blitar Immigration Office, this web-based platform is designed specifically to manage passport services for vulnerable populations, enhancing accessibility and service quality. Building on the existing M-PASPOR system, SIAP RAMAH introduces important modifications tailored to the needs of groups such as the elderly, persons with disabilities, and others facing barriers to service access. Unlike standard mobile apps that require

32 Al-Adwan, A. S., Albelbisi, N. A., Hujran, O., Al-Rahmi, W. M., & Alkhalifah, A. (2021). Developing a holistic success model for sustainable e-learning: A structural equation modeling approach. Sustainability, 13(16), 9453.

33 Antonietti, C., Cattaneo, A., & Amenduni, F. (2022). Can teachers' digital competence influence technology acceptance in vocational education? Computers in Human Behavior, 132, 107266.

34 Prandi C. et al., "Smart Campus: Fostering the Community Awareness Through an Intelligent Environment.," *Mobile Networks and Applications*, 2020. 25(3), 945-952.

35 Singh P. et al., "Government Transparency and Trust in E-Government Systems.," *Public Administration Review*, 2021. 81(4), 707-721.

36 R. Lestari, D. Pratama, and L. Suryani, "Analisis Model Interaksi E-Government: G2C, G2B, G2G, Dan G2E," *Jurnal Manajemen Dan Kebijakan Publik* 15, no. 2 (2021). 142-158.

installation and device compatibility, SIAP RAMAH's web-based design offers greater flexibility and ease of access across multiple devices, broadening its usability among marginalized users. A standout feature of SIAP RAMAH is the ability for vulnerable applicants to request or reserve assistive devices-including wheelchairs, walking canes, Braille materials, hearing aids, breast pumps, and strollers-addressing a common oversight in immigration services. Additionally, the system incorporates a quota availability function that helps ensure vulnerable individuals, who often struggle to visit immigration offices physically, can secure appointment slots. This is especially beneficial at the Blitar Immigration Office, where many applicants qualify for priority services. The registration process closely follows the M-PASPOR procedure: applicants register their email, confirm registration, select an appointment, complete an application form, provide personal and address details, and upload required documents. After submission, applicants can track their application status remotely, minimizing time spent at the office. The only mandatory physical visit is for biometric data collection. If unable to collect their passport in person, applicants may delegate this to a guardian or representative with a power of attorney, further reducing access barriers. While SIAP RAMAH offers these significant improvements, vulnerable groups continue to face broader challenges in accessing digital passport services, underscoring the need for ongoing research and development.

Despite advancements introduced by the Indonesian Directorate General of Immigration, vulnerable populations continue to face barriers, particularly due to low digital literacy, which stands at only 3.54 out of 5.00, ranking 62nd out of 70 countries in the Global Digital Literacy[37]. These challenges limit the full potential of digital innovations like SIAP RAMAH in effectively reaching marginalized users. A significant barrier to broader adoption is limited public awareness, primarily resulting from insufficient promotional efforts. User perception and acceptance are pivotal to the success of such systems. This study addresses a critical gap in existing research: the insufficient application of the Technology Acceptance Model (TAM) to evaluate human rights-based digital service innovations targeted at marginalized populations. TAM offers a validated framework to assess perceived usefulness and ease of use, both crucial for evaluating public service innovations like SIAP RAMAH. While TAM has been widely applied in various service domains, few studies focus specifically on human rights-based digital services within immigration contexts. Much existing research centers on general or commercial users, often overlooking the unique challenges faced by marginalized users in the public sector. By analyzing user acceptance of SIAP RAMAH through TAM, this study aims to provide fresh insights into adapting public service technologies to promote inclusivity, equity, and effectiveness for underserved and vulnerable populations.

2. METHOD

This research employed a qualitative descriptive approach to examine user acceptance of the SIAP RAMAH application at the Blitar Immigration Office, aiming to deeply understand the context and meanings of user experiences. The SIAP RAMAH application, designed to streamline passport processes for vulnerable groups, was the central research object, investigated through preliminary observations and interviews to establish foundational insights. Data were collected from primary sources—including participant observations of application use and structured interviews with purposely selected administrators, operators, and users—and secondary sources, such as documentation, academic literature, and expert opinions. Utilizing Miles and Huberman's analytical framework, data were systematically reduced, organized, and presented narratively, highlighting key themes and patterns. Triangulation across various sources and methods ensured the validity, reliability, and credibility of findings.

3. FINDINGS AND DISCUSSION

This chapter presents the findings of a study conducted at the Blitar Immigration Office, focusing on priority passport service applicants from human rights-friendly (Ramah HAM) groups and officers or operators using the SIAP RAMAH application. The study involved applicants, their representatives, and system operators who directly interacted with the SIAP RAMAH system.

37 Bulya Bulya and Suci Izzati, "Indonesia's Digital Literacy as a Challenge for Democracy in the Digital Age," *The Journal of Society and Media* 8, no. 2 (October 30, 2024): 640–61, https://doi.org/10.26740/jsm.v8n2.p640-661.

The primary objective of this analysis is to assess the ease of use and usefulness of the SIAP RAMAH application for priority passport service applicants using the Technology Acceptance Model (TAM) framework. The findings are based on interviews with applicants and immigration officers, providing insights into their experiences and perceptions regarding the application's usability and effectiveness. The results of these interviews are detailed in the following sections.

3.1. Perceived Ease of Use

The Perceived Ease of Use variable assesses how users perceive the SIAP RAMAH information system as intuitive, requiring minimal effort, and eliminating complexity. In the context of the SIAP RAMAH application, ease of use is evaluated not only in terms of functionality but also in its learnability (easy to learn), controllability, clarity and understandability, flexibility, skill acquisition (easy to become skillful), and overall usability (easy to use). The following section presents an analysis of these indicators based on interview findings:

3.1.1. Ease of Learning

An effective application is one that is easily understood and learned by both managers and users. The SIAP RAMAH application is evaluated in this study based on its design and accessibility for users. Immigration officers are provided with training sessions by the system developers, which ensures proper utilization of the system's features. Meanwhile, passport applicants can access learning materials and user guides through the official SIAP RAMAH web platform.

Interview responses reveal that both passport applicants and immigration officers found the SIAP RAMAH application relatively easy to learn. Most applicants considered the application intuitive and user-friendly, requiring little to no reliance on the provided user manual. However, one applicant mentioned that elderly users might face difficulties due to their lower adaptability to digital platforms, suggesting that additional support may be needed for this group. Similarly, immigration officers reported quickly mastering the system after just a single training session, highlighting the system's simplicity and intuitive design. Overall, while the SIAP RAMAH system is largely accessible and easy to use for most users, elderly applicants may require extra assistance to effectively navigate the application.

3.1.2. Controllability

Controllability is a key aspect of any information system, as it ensures that users can easily navigate and manage the system without confusion. A well-designed system allows users to efficiently access and perform necessary tasks. In the case of SIAP RAMAH, users should be able to quickly navigate the application and complete required actions seamlessly.

Most users interviewed reported that the SIAP RAMAH application was easy to control and navigate. The application's design was praised for clearly guiding users through essential tasks, such as selecting assistive devices and completing forms. Its intuitive design made it easy for users to understand how to use the system after just a brief interaction, even for more complex tasks like managing applications for young children. However, one applicant noted difficulty with the email-based registration process and highlighted limited public awareness as additional challenges. From the perspective of immigration officers, the system facilitated efficient monitoring of applicant quotas, streamlined the management of incoming applicants, and improved overall administrative processes. These findings suggest that while SIAP RAMAH is generally user-friendly and effective, enhancements in the registration process and increased public awareness could further improve the user experience.

3.1.3. Clarity and Understandability

An information system must be well-structured and simple to ensure that users can easily understand and follow procedures. The SIAP RAMAH system is designed with clarity and simplicity in mind, offering users a smooth and logical workflow. The system provides a step-by-step process, guiding users from email registration to final confirmation, and ensuring a clear progression through application type selection,

appointment scheduling, biodata entry, and document uploads.

All interviewed applicants confirmed that the SIAP RAMAH application is easy to navigate, with clear and understandable instructions. They reported no confusion when following the procedures, appreciating the straightforward design. The positive user experience was further validated by the immigration officer, who emphasized the system's intuitive layout and the accessible arrangement of menus, which contributed to its ease of navigation. These findings suggest that SIAP RAMAH provides an effective and user-friendly experience, making it easy for users to interact with the system.

3.1.4. Flexibility

A system must be flexible enough to adapt to changes and effectively meet user needs. The SIAP RAMAH system's flexibility is assessed based on user feedback, particularly its ability to accommodate diverse requirements, such as assistive tools, document uploads, and appointment scheduling.

Interview findings indicate that SIAP RAMAH successfully provides flexibility in meeting the needs of its users. Applicants were satisfied with the system's ability to select assistive tools, upload required documents, and schedule appointments according to their preferences. The immigration officer also highlighted the system's flexibility, especially in facilitating efficient data entry, monitoring assistive devices, and tracking service requests in real-time. Overall, both users and officers agreed that SIAP RAMAH effectively adapts to various user needs, contributing to a more streamlined and flexible passport application process.

3.1.5. Ease of Becoming Skilful

The ease of using a system depends on the user's ability to quickly develop proficiency in understanding and utilizing its features. The SIAP RAMAH system is designed with a user-friendly interface and intuitive menus to facilitate rapid skill acquisition, particularly for those seeking public services. Feedback from users indicated that the SIAP RAMAH application was easy to master quickly. Most applicants became proficient after minimal interaction, often after just a single use. The immigration officer similarly confirmed that the system allowed for rapid skill acquisition, noting that a single training session was sufficient for independent operation. While younger users experienced no issues, it was observed that elderly applicants might require additional assistance due to lower adaptability to digital systems. Overall, the application supports quick user proficiency, though tailored guidance may be necessary for older users to fully benefit from the system.

3.1.6. Ease of Use

A technological system is designed to simplify tasks and efficiently meet user needs. A system can be considered easy to use if it requires minimal effort to operate. The SIAP RAMAH system was developed to streamline passport applications for priority service applicants and improve applicant data management at the immigration office. All respondents unanimously agreed that the SIAP RAMAH application is both easy and comfortable to use, praising its user-friendly and intuitive interface. Applicants reported no significant difficulties or obstacles, highlighting the system's simplicity and ease of navigation. The immigration officer also confirmed that the straightforward design of SIAP RAMAH significantly enhances its ease of use. These findings clearly demonstrate that the application meets the ease-of-use criteria as outlined in the Technology Acceptance Model (TAM), ensuring that users can quickly adopt and efficiently use the system.

3.2. Usefulness

This variable assesses how users perceive the SIAP RAMAH system in terms of its benefits and effectiveness. A system is considered useful when it enhances efficiency and simplifies tasks. The evaluation of SIAP RAMAH's usefulness is based on several indicators, including its ability to speed up work processes (work more quickly), improve job performance, increase productivity, enhance effectiveness, make tasks easier, and provide overall usefulness. The following section presents the analysis of each indicator based on user interviews.

3.2.1. Speeding Up Work Processes

One of the primary objectives of implementing information technology is to reduce processing time and increase efficiency. SIAP RAMAH, as an innovative solution, is designed to streamline the passport application process for priority service applicants and expedite data processing at the immigration office. All applicants interviewed agreed that SIAP RAMAH significantly accelerates the passport application process by eliminating manual tasks such as filling out PERDIM forms or declaration letters. Users reported substantial time savings and appreciated the direct progression to the biometric and interview stages without additional paperwork. Similarly, the immigration officer highlighted improvements in administrative efficiency, noting faster service delivery and more streamlined applicant data processing. These findings collectively confirm that SIAP RAMAH effectively enhances operational efficiency, benefiting both passport applicants and immigration personnel.

3.2.2. Improving Job Performance

The implementation of information technology aims to enhance performance and efficiency, ensuring tasks are completed optimally. In this context, SIAP RAMAH is designed to streamline the passport application process and improve the overall workflow for both applicants and immigration officers. All interviewed applicants confirmed that SIAP RAMAH significantly enhances their efficiency and flexibility in managing passport applications. They particularly appreciated the ability to prepare necessary documents in advance, which helped reduce confusion during the application process. The immigration officer also emphasized the positive impact of the system on job performance, noting that features like quick data entry and the dashboard for monitoring priority applicants greatly simplified administrative tasks. These findings demonstrate that SIAP RAMAH effectively improves job performance for both passport applicants and immigration officers, enhancing workflow and operational efficiency.

3.2.3. Increasing Productivity

Productivity, in this context, refers to the ability to complete tasks more efficiently with the aid of an information system. SIAP RAMAH streamlines the priority passport application process, making it faster, more accurate, and more organized, allowing both applicants and immigration officers to complete their tasks more effectively. All respondents reported that SIAP RAMAH significantly enhances productivity by reducing passport processing times. This reflects broader trends in public service digitalization where systems designed with user-centric goals contribute not only to operational efficiency but also to public service motivation among civil servants.[38] Applicants noted improvements in service efficiency, particularly due to the elimination of manual paperwork, such as PERDIM forms and declaration letters, which resulted in quicker and smoother service delivery. Immigration officers also confirmed increased productivity, citing the system's facilitation of comprehensive document preparation, which led to faster and more streamlined passport services. Overall, SIAP RAMAH clearly contributes to enhanced productivity by simplifying procedures, reducing processing times, and ensuring document completeness.

3.2.4. Effectiveness

Effectiveness refers to the alignment between a system's output and its intended objectives, directly influencing the achievement of desired results. A system is considered effective when its outputs meet its goals, with a greater impact indicating higher effectiveness. All respondents confirmed that the SIAP RAMAH application effectively meets user needs, particularly in document preparation, time efficiency, and facilitating the passport application process. Applicants highlighted the application's clarity in outlining document requirements, which helped reduce the risk of incomplete submissions and saved significant time. The immigration officer also acknowledged the system's effectiveness, noting improvements in processing speed and the simplification of procedures for priority service applicants requiring assistive devices. While SIAP RAMAH successfully addresses users' practical needs, informants suggested that increasing public awareness of the system could further enhance its overall impact.

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3.2.5. Simplifying Work Processes

One of the primary objectives of implementing an information system is to simplify tasks for users. SIAP RAMAH was developed to facilitate the passport application process for priority service applicants while also streamlining administrative tasks for immigration officers. By providing structured information, reducing processing time, and improving service efficiency, the system ensures that both applicants and officers can complete their tasks more easily. All respondents confirmed that SIAP RAMAH significantly simplifies the passport application process. Applicants appreciated the convenience of scheduling appointments in advance, the assurance of document completeness, and the overall ease of the application process. Similarly, the immigration officer acknowledged that the system streamlined their tasks, improving efficiency and making it easier to deliver services to priority applicants. These findings clearly demonstrate that SIAP RAMAH effectively simplifies both administrative duties and user experiences, resulting in faster and more efficient passport service delivery.

3.2.6. Usefulness

An information system must generate valuable data for its users, and its acceptance depends on its perceived usefulness, whether its implementation effectively meets user needs. SIAP RAMAH was developed and implemented at the immigration office benefit both applicants and immigration officers. All respondents agreed that SIAP RAMAH is highly beneficial, offering clear and practical advantages. Applicants particularly emphasized the system's value in saving time and enhancing convenience, which is especially important in the digital age. Similarly, the immigration officer supported this view, noting that the system has improved and simplified passport services. Overall, these findings suggest that SIAP RAMAH is considered highly beneficial by both applicants and officers, clearly meeting the usefulness criteria outlined in the Technology Acceptance Model (TAM).

In summation, a new framework is proposed, the Human-Rights-Based Technology Acceptance Model (HR-TAM), which expands the traditional Technology Acceptance Model (TAM) by incorporating variables that address the unique needs of vulnerable populations in public service contexts. While TAM emphasizes perceived usefulness (PU) and perceived ease of use (PEOU), the HR-TAM introduces additional constructs: Accessibility Assurance (AA), which reflects the system's ability to accommodate physical and cognitive limitations; Equity Perception (EP), which captures user views on fairness and inclusion; Trust in Public Service (TPS), representing confidence in the system's integrity and alignment with human rights principles; and Awareness and Outreach (AO), which assesses how effectively the service is promoted to marginalized users. These dimensions are derived from insights into the implementation of the SIAP RAMAH application at the Blitar Immigration Office, where usability and usefulness were found to be necessary but insufficient without active efforts to ensure equitable access, trust-building, and inclusive communication strategies. The HR-TAM thus offers a more holistic model for evaluating and improving human rights-friendly digital innovations in public service delivery.

4. CONCLUSION

This study demonstrates a strong relationship between the Technology Acceptance Model (TAM) constructs-Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)-and the adoption of the SIAP RAMAH application among vulnerable populations. The findings confirm that users' acceptance of the system is directly influenced by their belief that the platform enhances service accessibility (PU) and requires minimal effort to operate (PEOU). For vulnerable groups such as elderly individuals and persons with disabilities, PEOU emerged as particularly critical, as simplified digital procedures mitigated barriers related to limited technological familiarity. Simultaneously, PU was strongly associated with time savings and reduced physical visits, aligning with the core needs of these populations. These interrelated variables underscore the importance of human-cantered design in public service technologies, where usability and tangible benefits jointly determine successful implementation.

The implications extend beyond technical adoption to broader public administration reforms. First, the study highlights that digital literacy programs must be prioritized alongside technological deployment finding corroborated by the challenges elderly users faced despite the system's intuitive design. Second, infrastructure

limitations, particularly inconsistent internet access in rural regions, indirectly diminish PU by restricting reliable system use, suggesting that connectivity improvements are a prerequisite for equitable service delivery. Third, low public awareness of SIAP RAMAH's features among vulnerable groups indicates the need for targeted outreach campaigns through community channels rather than generic digital promotions.

For policymakers, viewed through the Human-Rights-Based Technology Acceptance Model (HR-TAM), these findings call for a dual policy approach: enhancing technical functionality while addressing the unique needs of vulnerable users. Improving PEOU through features like voice-assisted navigation addresses Accessibility Assurance (AA), while mobile assistance units for the elderly enhance PU and promote inclusive use. To build Trust in Public Service (TPS), collaboration with healthcare providers and disability advocates is essential. Interface adjustments and service design that reflect Equity Perception (EP) can further reinforce user confidence. Finally, targeted offline and community-based campaigns strengthen Awareness and Outreach (AO), ensuring the SIAP RAMAH system reaches and resonates with those most in need.

This research reaffirms that technology alone cannot guarantee inclusive public services. The interplay between user perceptions, institutional support mechanisms, and infrastructural readiness must be systematically addressed to realize the human rights-oriented goals of initiatives like SIAP RAMAH. Subsequent studies should explore longitudinal adoption patterns and the role of cultural factors in shaping technology acceptance across diverse vulnerable demographics.

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6. CONFLICT OF INTEREST

No conflict of interest exists in this research manuscript article.

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